

We claim:

1. A furnace carbon black producing process wherein off-gas from a carbon black furnace is dewatered and heated, following substantial removal of carbon black therefrom, and fed as a combustion gas feed stream to a burner portion of the same or a different carbon black furnace.
2. The furnace carbon black producing process in accordance with claim 1, wherein the heated, dewatered off-gas is employed in a deep fuel rich combustion strategy without other combustible gas feed streams to the burner.
3. The furnace carbon black producing process in accordance with claim 1 wherein the heated, dewatered off-gas is dewatered by means of pressure swing absorption.
4. The furnace carbon black producing process in accordance with claim 1 wherein the off-gas is subjected to plasma heating subsequent to removal of carbon black therefrom and prior to being fed to the burner.
5. The furnace carbon black producing process in accordance with claim 1 wherein an oxidant gas feed stream to the burner is subjected to plasma heating prior to being fed to the burner.
6. The furnace carbon black producing process in claim 1 wherein hydrocarbon feedstock is subjected to plasma heating prior to being fed to the furnace.
7. The furnace carbon black producing process of claim 1 wherein combustion gases produced in the burner by combustion of the heated, dewatered, off-gas with an oxidant gas feed stream are subjected to plasma heating prior to contacting make hydrocarbon feedstock in the reactor of the carbon black furnace.

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8. The furnace carbon black producing process of claim 1 wherein the oxidant gas feed stream to the burner comprises air plus oxygen enhancement, wherein the oxygen enhancement is produced by a pressure swing adsorption process.
9. A furnace carbon black producing process wherein plasma heating is used.
10. The furnace carbon black producing process in accordance with claim 9 wherein off-gas is subjected to plasma heating subsequent to removal of carbon black therefrom and prior to being fed to a burner portion of the same or a different carbon black furnace.
11. The furnace carbon black producing process in accordance with claim 9 wherein an oxidant gas feed stream to a burner portion of the same or a different carbon black furnace is subjected to plasma heating prior to being fed to the burner.
12. The furnace carbon black producing process in claim 9 wherein hydrocarbon feedstock is subjected to plasma heating prior to being fed to the furnace.
13. The furnace carbon black producing process of claim 9 wherein combustion gases produced in a burner portion of the same or a different carbon black furnace are subjected to plasma heating prior to contacting make hydrocarbon feedstock in the reactor of the carbon black furnace.
14. The furnace carbon black producing process of claim 9 wherein the oxidant gas feed stream to the burner comprises air plus oxygen enhancement, wherein the oxygen enhancement is produced by a pressure swing adsorption process.